1: Krasheninnikov N-5 (1736-40) 1764 Kamchadal

134/241 ſeveral years paſt ſown ſeven or eight poods † of barley, which yielded a crop not only ſufficient for groats and meal for their own uſe, but even enough to ſupply their neighbours, though they are obliged to plough their land with men.

All garden ſtuff thrives not alike; the moſt ſucculent produce only leaves and ſtalks. Cabbage and lettice never grow to any head, and the peas continue in flower until late in the harveſt without yielding ſo much as pods; but garden roots which are full of juice, ſuch as turnips and radiſhes, grow very well. Theſe tryals, however, were only made upon the banks of the Great River and *Awatſcha*. Such things as require a hot ſoil, grow very well every where, but ſtill beſt upon the *Kamtſchatka*. Upon the Great River I never ſaw any turnips larger than three or four inches diameter; but upon the *Kamtſchatka*, I have ſeen them four or five times as big.

137 The graſs grows here ſo high, and is ſo full of ſap that one ſcarcely ſees any thing like it in all the empire of *Ruſſia*; near the river and lakes, and in the opening of the woods, it riſes to above the height of a man, and ſo faſt that it may ſometimes be mowed thrice in a ſummer; ſo that few places can be more proper for breeding of cattle; and although the blades are thick and high, and make but a coarſe ſort of hay, yet the cattle are large and fat, and give plenty of milk both ſummer and winter, which I attributed to the richneſs of the ſoil and the ſpring rains. The graſs continues full of juice, even to the beginning of winter, which being condenſed by the cold prevents the graſs from turning hard during that ſeaſon. As the graſs is ſo high and thick, a great deal of hay may be made upon a ſmall ſpot; and the cattle can find food in the fields all the winter. The places where 132 the graſs thus grows are never ſo much covered with ſnow as the bogs and ſwamps, and for this reaſon it is difficult to travel over them in the winter.

† A pood is a *Ruſſian* weight of 40 lb.

In

l: Krasheninnikov N-5 (1736-40) 1764 Kamchadal

In other places lying upon the Eaſtern Ocean, either to the N. or S. of *Kamtſchatka*, there is no land fit for culture; for all that is near the ſhore is either ſandy, ſtony, or boggy, and the banks are ſo narrow, that if the ground was good, yet there is not enough for agriculture; and there are but very little hopes of the land about the *Penſchinſka* ſea anſwering better, eſpecially for winter-corn, it being all marſhy and boggy. At ſome diſtance from the ſea are found woody places which are dry and high, and appear not improper for corn; but the ſnow which falls in the beginning of the harveſt before the earth is frozen, and lies generally deep upon theſe places 'till the middle of *May*, both prevents the ſowing of the ſummer-corn, and deſtroys the winter-corn; and, becauſe at the thawing of the earth the corn would be blaſted by the evening froſts, it is impoſſible to ſow any before the middle of *June*; after which time to *Auguſt* are continual rains, ſo that ſometimes the ſun is not ſeen for fourteen days together: this would cauſe the corn to grow very high and full of juice; but, for want of warm and dry weather, it would never ripen. Notwithſtanding, Mr. *Steller* thinks, that if the ground was properly prepared, oats and barley might ripen there; but this is much to be doubted, until, at leaſt, further tryal can be made; for I have myſelf ſeveral times ſown barley upon the Great River, and it grew well in thickneſs, height, and ſtrength of blade 'till the beginning of *Auguſt*, when, juſt as the ear was putting forth, all of it was deſtroyed by the froſt.

All theſe barren places, not only near the *Penſchinſka* ſea, but even within the land, appear to be compoſed of earth brought from other parts. This one may diſcover by the different ſtrata, and perceive how they have encreaſed yearly on the banks of the rivers, which are high, and on the cliffs that are bare. I have ſeen hanging out of the earth, trees which are not to be found in that country, more than ſeven feet deep under the ſurface. Hence it may be concluded, that all theſe barren, boggy places, where at

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this they bring down with great difficulty, uſing the method above mentioned: for which reaſon a very poor houſe will coſt here 100 rubles and more, and a ſmall fiſhing-boat five rubles. In other places, where the hills are nearer the ſhore, and the water-carriage eaſier, wood for firing and building is much cheaper.

Upon the *Biſtroy* river, which falls into the Great River below the *Bolſcheretſkoi Oſtrog*, grows the beſt wood that is in theſe parts; even the birch-trees are ſo large, that captain *Spanberg* built a ſloop with their wood, in which he made ſeveral diſtant voyages to ſea.

It is very remarkable, that when this veſſel was launched ſhe lay as deep in the water as a veſſel full loaded; and it was believed, that ſhe never would be fit to go to ſea, but that the ſmalleſt loading would ſink her. But, when ſhe was laden, ſhe drew very little more water, and few veſſels ſailed better or lighter, or could go nearer the wind: the reaſon of which may be, that as this wood has not ſo much roſin, it ſucked a greater quantity of water at firſt, but ſo ſoon as its parts were once filled, it then ſucked very little more.

There is great plenty of wood upon the eaſtern coaſt of *Kamtſchatka*; from the hills down to the very ſhore grow very fine birch and alder trees. Beyond the river *Jonpanoba*, and towards its head, begin the woods which continue to the *Kamtſchatka*, *Lopatka*, and along the river *Kamtſchatka* to the mouth of the river *Elouki*. Up the river, almoſt to its head, grow likewiſe pines, but not large enough for buildings. About the neck of land which joins the peninſula of *Kamtſchatka* to the continent, the wood begins again to fail.

The changes of the weather and air are commonly in the following order: harveſt and winter make up more than one half of the year; and the ſpring and ſummer cannot be reckoned above

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132 above four months: the trees commonly begin to bud about the end of *June*, and ſome of them to loſe their leaves in the month of *Auguſt*.

The winter is moderate and conſtant, ſo that there are neither ſuch ſevere froſts nor ſudden thaws as in *Jakutſki*. The mercury in *de l' Iſle*'s thermometer was between 160 and 180 degrees. From the ſevere froſts that we had two years following in the month of *January*, it fell to 205 degrees. The month of *January* is always their coldeſt month; and at that time the mercury was between 171 and 200 degrees.

The ſpring weather is pleaſanter than the ſummer; when, although it ſometimes rains, yet now and then there are fine clear days. The ſnow lies to the end of *May*, which with us is reckoned the laſt ſpring month.

The ſummer is for the moſt part very diſagreeable weather, rainy and cold *; the reaſon of which is the continual damps from the neighbouring mountains being covered with ſnow that never melts. It frequently happens, that for a week or two the ſun does not appear: and during all the time that I was there we had never one whole week of fair weather, never one day ſo clear but the mornings were foggy; and there fell, as it were, a ſmall drizzling rain, which continued 'till twelve o'clock. From this moiſt air and the neighbouring hills it is ſo cold, that one can never be without warm cloathing.

I never obſerved either violent rains or loud thunder; for the rains are ſmall, and the thunder reſembles ſome rumbling noiſe under the earth. The lightning is alſo very weak.

In the *Oſtrog* upon the Great River, where the air is warmer, the mercury in the thermometer changed from 130 to 146 degrees; and by an extraordinary heat, that happened two different years in the month of *July*, it roſe 118 degrees.

* This is to be underſtood of the country about the Great River and the *Penſchinſka* ſea; in other places the ſummer is tolerable, as will be mentioned hereafter.

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The inconſtancy of the ſummer weather not only occaſions the unfruitfulneſs of the land, but is likewiſe a great hindrance to the people in preparing their fiſh againſt the winter; ſo that, although there is vaſt plenty of fiſh, they are not able to prepare ſo much as to prevent a ſcarcity before the winter is over; nor can they preſerve one fiſh out of ten which they hang up to dry, the continual wet breeding worms which conſume it; ſo that the fiſh which the dogs and bears catch themſelves and lay up, ſells very dear in the ſpring.

In the more diſtant places from the ſea, and eſpecially about the upper *Kamtſchatka Oſtrog*, the weather is very different; it being fine and clear from the month of *April* to the middle of *June*. The rains begin after the ſummer ſolſtice, and continue to the end of *Auguſt*. Deep ſnows fall in the winter; but high winds ſeldom happen, and, when they do, are but of ſhort continuance: and although there does not, perhaps, fall more ſnow than upon the Great River, yet it is deeper, as it lies lighter.

The harveſt weather is generally agreeable and clear, except at the end of *September*, when ſtorms frequently happen. The rivers are generally frozen over in the beginning of *November*; for their ſwift current prevents their freezing in moderate froſts. Upon the *Penſchinſka* ſea the winds are generally in the ſpring ſouth-ſouth-eaſt and ſouth-weſt; in the ſummer, weſt; in the autumn, north and north-eaſt; in the winter before the ſolſtice, uncertain; but after that, to the month of *March*, the north-eaſt and eaſt winds prevail. From theſe winds the ſpring and ſummer, before the ſolſtice, are generally thick and heavy; but the weather in the months of *September*, *October*, *February*, and *March*, is more agreeable, and is the time for trade and long journies. In *November*, *December*, and *January*, there is little clear good weather, but heavy ſnows and great drifts, which in *Siberia* they call *Pourgami*. The eaſt and ſouth-eaſt winds blow long and moſt violently, ſometimes for two days together, and with ſuch vehemence, that

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that a man cannot ſtand upon his feet. Theſe winds, which generally rage the three laſt-mentioned months, bring a great quantity of ice upon the ſhore of the *Lopatka* and *Awachinſkaya* bay, with a multitude of ſea-beavers: about this time, therefore, is their beſt ſeaſon for catching theſe animals. The north winds, either in ſummer or winter, bring agreeable clear weather; but the ſouth and ſouth-weſt winds in ſummer are attended with rain, and in winter with ſnow. And although the cold is not ſo great, yet the air is always heavy and thick, and at ſea generally attended with great fogs, as our people, who went upon the *American* and *Japan* expedition, experienced: therefore ſailing in ſuch weather is as dangerous as living upon the land is diſagreeable; and this agreement of the weather of *Kamtſchatka* with what is found far out at ſea is to be attributed not only to neighbouring countries, but likewiſe to the great and extenſive Southern Ocean. Hence the northern parts of *Kamtſchatka*, that are ſheltered from the ſouth wind, are both more fertile and enjoy a better climate; and the nearer one comes to the *Lopatka* the moiſter and thicker is the air in ſummer, and the winds more violent and of longer duration in winter. It frequently happens, that about the Great River the weather is very calm and agreeable, while at the *Lopatka* the inhabitants cannot ſtir out of their huts; becauſe it is a narrow point of land, and expoſed to every wind, except in the bay. All along the *Penſchinſka* ſea, the more northernly any place lies, the leſs rain have they in ſummer and wind in winter. The winds and weather about the mouth of the *Kamtſchatka* river, and near to the upper *Oſtrog*, are very changeable. From the eaſt and ſouth-eaſt they have as violent ſtorms as about the *Penſchinſka* ſea; but yet, compared with this, the weather is more frequently fair than rainy. The difference between the eaſtern and weſtern parts of *Kamtſchatka* is plainly to be ſeen in travelling from the head of the *Biſtroy* river: for towards the *Penſchinſka* ſea the air appears always thick and hazy,

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hazy, the clouds heavy, and always dark; while *Kamtſchatka* appears like another world, where the land lies higher, and the air is clear and ſerene.

The ſnow lies always deeper upon the *Lopatka* than upon the northern ſide of *Kamtſchatka*; ſo that, if it be twelve feet in depth about the *Lopatka*, upon the *Awatſcha* and the Great River it is not ſo deep by one third, and at the ſame time lies lighter and more equal, by reaſon that the winds are not ſo high there. About *Tegbil* and *Karaga* the ſnow is ſeldom deeper than a foot and a half: hence the reaſon appears why the *Kamtſchadales* do not keep rein-deer as well as the *Koreki*, but depend upon the fiſh for their nouriſhment, which upon the north-eaſt and north-weſt coaſt from the Great River is ſo ſcarce, that unleſs theſe barbarous creatures could digeſt every thing they can get down, they would not be able to ſupport life; for, though throughout the country of *Kamtſchatka* there would be food enough for rein-deer, yet the depth of the ſnow renders it impoſſible to maintain a number of them; and what rein-deers we had occaſion for in the expedition were never kept here in the winter, the depth of the ſnow making it hard for them to dig down to their food.

The force of the ſun reflected from the ſnow in the ſpring is ſo great, that the inhabitants are as tawny as *Indians*; nay, they have their eyes ſpoiled and blinded thereby: therefore the natives generally wear covers pierced with ſmall holes, or nets of black hair, to leſſen the number of rays which would otherwiſe fall upon their eyes. This is occaſioned by the great winds, which drive the ſnow ſo cloſe together that it is almoſt as hard and ſolid as ice, and will not allow the rays of the ſun to penetrate, but reflects them with greater force upon the very delicate and ſenſible nerves of the retina than they are able to bear. Mr. *Steller* ſays, that neceſſity forced him to find out a remedy for the pain and inflammation of the eyes, which generally gave relief in ſix

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000 hours' time. It was the white of an egg, with ſome camphire and ſugar, which he rubbed 'till it foamed upon a pewter plate, then tied it in a handkerchief, and bound it upon the forehead. This he found to ſucceed in every inflammation of the eyes.

132 It hails frequently both in ſummer and harveſt; but I never ſaw the hail bigger than peaſe. It ſeldom lightens but at the ſummer ſolſtice. The thunder is alſo but ſeldom heard, and then ſeems to be at a great diſtance. We have no inſtance of any one killed by thunder: the natives ſay, indeed, that before the arrival of the *Ruſſians* they had a great thunder, and ſome were killed by it; but this is to be queſtioned, ſince for ſo long a time we have had no inſtances of it. As to fogs, it is impoſſible that there ſhould be greater any where than at *Kamtſchatka*; and it is to be queſtioned whether deeper ſnows fall any where between 55 and 52 degrees north latitude than here, from the melting of which the rivers ſwell ſo much as to overflow their banks, and the earth in the ſpring is entirely covered with water. The cold in winter is moſt intenſe about the Great River and the *Awatſcha*; but in the lower *Kamtſchatkoi Oſtrog* it is much warmer than in any other place of *Siberia* in the ſame latitude.

The greateſt inconveniency ariſes from the violent winds and ſtorms, concerning which the following remarks may not be improper. Before a great wind, which generally comes from the eaſt, the air is always thick and dark; but, as I had not a thermometer, I cannot be certain if it is warmer then than at other times. The eaſt winds coming from the *Lopatka*, where are burning mountains and warm ſprings, I imagine that they not only ariſe from the narrowneſs of the land, but alſo from ſubterraneous fires and vapours.

135 With regard to other advantages or diſadvantages of this country,
258 one may ſay in general, that its greateſt riches conſiſt in plenty
439 of good furs and fiſh, and its greateſt inconveniences in the want of iron and ſalt. The firſt they are ſupplied with from other

1: Krasheninnikov N-5 (1736-40) 1764 Kamchadal

361 different buildings; the entrance into the fort is by a ſmall
563 gate on the weſt ſide. Beyond the fort was a chapel, now con-
R verted into a church conſecrated to St. Nicholas, with a belfry
177 upon pillars. There are about 30 houſes of inhabitants, one pub-
.71 lick houſe for ſelling brandy, and a diſtillery. There are about
45 Coſſacks; and though their children pay the common head tax, yet 14 of them do duty with the other Coſſacks. This fort is the weakeſt of all; but they ſeem to be very ſecure, as the neighbouring *Kamtſchadales* were almoſt the firſt that ſubmitted,
361 and have always been faithful, and lived peaceably. With re-
R gard to its ſituation it has great advantages: firſt, all veſſels that
177 come by ſea can come into the Great river, from which they
.71 receive their goods at the firſt hand: ſecondly, they receive great profits from the perſons that arrive there, whom they furniſh with lodging and board: thirdly, they are great gainers by the tranſporting goods from thence to the other forts: fourthly, they have a better opportunity than the others of getting *Kamtſchatka* beavers, which is now reckoned a principal commodity: fifthly,
132 in the ſummer they have the greateſt plenty of fiſh, which they
136 catch with little trouble and expence; for this reaſon the commander in chief of all the *Kamtſchatka* forts generally lives here, ſending out deputies to the others. The only diſadvantage they have is, that in the ſummer, during the time of fiſhing, they are very ſubject to rainy weather, which ſpoils a great many of their
137 fiſh, and thereby reduces them to great difficulties for food. If this river was furniſhed with wood ſufficient the difficulty might be removed, as inſtead of drying them in the ſun they might ſmoke them, as the inhabitants of *Ochotſka* do. But this is impracticable becauſe of the diſtance of the wood, and the trouble of bringing it down. It is ſo ſcarce here, that what they abſolutely muſt have for the boiling of ſalt and train oil, they are forced to provide at the diſtance of three days' journey, and can bring no more than will ſerve to make 40 pounds of ſalt.

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5: Jochelson A-5 (1910-11) 1928 Kamchadal

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The Russian Government repeatedly tried to introduce agriculture and gardening into Kamchatka. For this purpose peasants from Southern Siberia and European Russia were transferred several times to Kamchatka, but all experiments have failed and the imported husbandmen turned to fishing and hunting. Only in the valley of the Kamchatka River, near the village Kluchevskoye, small sowings of barley are still being made, but without any economic importance.

Experiments with gardening appeared to be more successful. Potatoes grow all over Southern Kamchatka where the digging of edible roots had almost ceased. Turnips grow there and the inhabitants of Kluchevskoye also grow cabbage, which heads well.

CLIMATE OF KAMCHATKA

• 132

The following data on the climate of the Kamchatka Peninsula are based on observations made in 1908–1909 by the members of the Meteorological Division of the Riaboushinsky Expedition headed by Dr. V. A. Vlasov.[1]

As climate is one of the most effective nature-agents regulating human life, data concerning three chief regions of the country will be given: the western coast, the eastern coast and the central part, represented chiefly by the valley of the Kamchatka River. The western and the eastern shores represent maritime climates, while the climate of the central part may be characterized as a continental one.

The climate of the western coastline of Kamchatka is more severe than that of the eastern, due to the cold Okhotsk Sea. During the winter cold winds prevail, blowing from the Siberian continent, the region of the great Siberian anticyclone. A late spring and a cold summer characterize the climate of the western coast. On the eastern shore of Kamchatka, under the moderating influence of the Pacific Ocean, frosts in the winter are not so severe. Rain and snowfall are more abundant. However, the cold current arriving from the Bering Strait and the amount of ice which it brings delay the beginning of summer and reduce its temperature.

The climate of the central Kamchatka, confined by its western and eastern mountain ridges, i. e., the valley of the Kamchatka River, distinguishes itself by all the peculiarities of a continental climate, having a cold winter and a comparatively warm summer. In order to demonstrate what has been said of the three climatic regions, mean annual figures for three points are given: for Tighil on the western shore, Petropavlovsk on the eastern shore and Kluchevskoye in the valley of the Kamchatka River.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Year
	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C	°C
Tighil	−20.0	−19.8	−13.6	−2.2	2.4	6.2	11.3	12.1	7.0	−1.0	−7.4	−17.2	−3.5
Petropavlovsk	−10.9	−11.2	− 7.0	−1.6	3.1	7.9	11.6	13.5	9.8	4.2	−1.8	− 6.6	1.0
Kluchevskoye	−16.4	−15.2	−11.3	−1.5	4.6	8.5	12.15	13.1	8.3	−1.4	−7.8	−13.0	−2.0

[1] See V. A. Vlasov, The Kamchatka Expedition of F. P. Riaboushinsky organized by the Imperial Russian Geographical Society, Meteorological Division, vol. I, part 1, *On the Climate of Kamchatka*; part 2, on *The Temperature of the Waters*. Moscow, 1916 (in Russian). Centigrade thermometers were used.

5: Jochelson A-5 (1910-11) 1928 Kamchadal

132 From this table it is seen that the climate of Tighil is much colder than that of Petropavlovsk and that the climate of Kluchevskoye, by its yearly and some of its monthly mean temperatures, is colder than that of Petropavlovsk, but by its summer temperature (May, June and July) it is warmer than that of Petropavlovsk.

Temperature of the soil. Monthly means, 1909.

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Amplitude
Petropavlovsk:													
(1)	−10°5	−10°6	− 7°2	−0°5	6°8	14°5	17°6	15°6	10°9	.....	−4°7	−10°5	28°2
(2)	0.6	0.4	0.3	0.1	4.9	9.3	.....	13.4	10.9	.....	1.9	0.9	13.3
(3)	1.9	1.6	1.4	0.9	3.1	6.5	.....	12.1	10.4	.....	3.6	2.4	11.2
(4)	3.8	3.4	3.0	2.6	1.6	2.7	.....	6.8	7.1	.....	5.2	4.4	5.5
Kluchevskoye:													
(1)	−15.1	−17.3	−12.2	−2.4	10.2	15.6	19.2	15.9	.....	.....	−8.3	−19.3	38.6
(2)	− 9.5	−10.3	− 7.8	−3.1	3.5	9.3	12.8	12.4	.....	.....	−3.0	−10.4	23.2
(3)	− 1.2	− 2.6	− 3.8	−2.2	−0.8	0.0	3.0	4.0	.....	.....	1.7	0.1	6.8
(4)	1.4	1.0	0.7	0.5	0.4	0.4	0.4	0.4	.....	.....	2.7	2.1	2.3
Tighil:													
(1)	−15.3	−20.3	−14.0	−2.8	6.8	13.0	15.7	13.3	8.4	1.7	−6.1	−15.6	36.0
(2)	−11.9	−14.7	−12.0	−3.9	1.6	6.9	10.6	10.7	8.1	2.7	0.8	0.4	25.4
(3)	− 3.1	− 6.2	− 6.9	−4.4	−0.3	0.0	1.1	4.0	5.1	3.0	0.9	0.3	12.0
(4)	0.4	0.0	− 0.3	−0.9	−0.6	−0.2	−0.2	−0.2	0.0	0.3	0.3	0.2	1.2

(1) means on the surface; (2) means 0.33 meter deep; (3) means 1.0 meter deep; (4) means 2.0 meter deep.

This table is compiled from the numerous data on this subject by Vlasov, in order to show what time of the year may be regarded as the most favorable for making excavations in Kamchatka. In Petropavlovsk from May to September inclusive; in Kluchevskoye from July to September; in Tighil in August and September, and even in these two months we meet the freezing point at the depth of two meters. My own experience in that region gave still less favorable results. While digging on June 11 on the bank of Kulki River, a tributary of Tighil River, not far from the village Tighil, I met frozen soil at the depth of one foot and down. According to Vlasov only at the depth of more than 1 meter (3.28 feet) is the soil in Tighil frozen in that month.

SOMATOLOGY

144 177 The present Kamchadal have become mixed with Russian settlers and many have lost their former Koryak-like appearance, even in places where officially no Russians are recorded. The same may be said of the inhabitants of the southern villages, Yavino and Golyghino, who in former times might have been physically influenced by the Kurilians (i. e., the Northern Ainos). The Kurilians had intercourse with the Southern Kamchadal, and some Kurilians had settlements on the southern extremity of the Kamchatka Peninsula.

141 The measurements of Kamchadal taken by Mrs. Jochelson show that the Russian metisation influenced very little the physical character of the Kamchadal. 158 men and 170 women were measured. The following table gives some of the measurements and indices.

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651 pay their tribute in ſkins of theſe animals, as I ſhall explain hereafter *.

132 Two phenomena in the heavens were obſerved at the north-weſt, during the nights of the 13 and 14. From the deſcription that was given of them, we judged that they were auroræ boreales, and we lamented that we were not informed time enough to ſee them. The weather had been tolerably fair during our ſtay at the baths; but the weſtern part of the ſky had been almoſt conſtantly charged with very thick clouds. The wind varied from weſt to north-weſt, and gave us now and then a ſhower of ſnow, which did not yet acquire conſiſtency, notwithſtanding the froſts which we experienced every night.

000 Our departure was fixed for the 17 Octo-

* Theſe ſkins are not only a conſiderable branch of commerce, but ſerve as a ſpecies of money with the Kamtſchadales.

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[October, 1787--analyst]

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492 throw is not the conſequence. In falling, it is ſtill neceſſary not to quit the vehicle, but to hold it as firm as poſſible, in order to create a ſufficient weight to impede the dogs, who, as I have already ſaid, will otherwiſe advance full ſpeed. The common mode of ſitting in a ſledge is ſide ways, as a lady rides on horſeback; we may alſo ſit aſtride; but the point of main difficulty, the *ne plus ultra* of addreſs and of grace, is to be able to ſtand upon one leg: it is excellent to ſee an adept in this ſtriking attitude.

For myſelf, I was no ſooner able to drive, than I abandoned every other mode of conveyance. Always accompanied, becauſe of the roads, I ſometimes took a ride, and
132 ſometimes went a hunting. The tracks of hares and partridges were perceptible on the ſnow*, and to ſuch a degree, that it appeared

* The ſnow began to fall 5 November, and ſo heavily, that the country was covered almoſt immediately. But the froſt

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peared full of holes like a ſieve. The ſnow was frequently ſo deep in the woods, that it was impoſſible to proceed a ſtep without ſinking in; our reſource in that caſe was to quit our ſledges, which were no longer ſerviceable to us, and turn them upon their ſide. Having taking this precaution, which was ſufficient to retain our dogs, who immediately laid themſelves down in a circular form upon the ſnow, and patiently waited the return of their guides; we faſtened to the ſoles of our feet, with leathern thongs, rackets, made of thin board *, ſix or eight inches wide and four feet long, the front of which turned up like ſkates, and the bot-

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froſt being later, and guſts of wind continuing almoſt without ceſſation, the ſledges could not conveniently be uſed till a conſiderable time after, as will be ſeen in the ſequel.

132

* Theſe rackets are called *ligi*. In the northern part of the peninſula they uſe another ſort of racket, called *lapki*, which are ſhorter, and made of leathern thorns twiſted, like the ſtrings of a tennis racket; two ſmall ſharp pointed bones are fixed in the bottom, which penetrate the ice, and are a preſervative againſt ſliding.

tom

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TOWARDS THE END OF NOVEMBER THE COLD
132 became on a ſudden ſo ſevere, that in a few
166 days the rivers were all frozen, even the Bol-
226 chaïa-reka, which ſeldom happens, becauſe of the extreme rapidity of its current. The next day it got rid of the ice that covered it, and from that time I ſaw no more ſtop before Bolcheretſk, lower than the houſe of the governor. Though frozen in various places, it preſents a great number chaſms, where the water is ſeen to flow as uſual.

On each ſhore of the peninſula, there is a ſenſible difference in the atmoſphere. During the fine weather, a drought prevailed at Saint Peter and Saint Paul's, whereas at Bolcheretſk they complained of frequent ſhowers; meanwhile autumn had not proved this year more rainy than common. Very heavy rains are injurious in this country, becauſe they occaſion floods, which drive the fiſh from the rivers; a famine moſt diſtreſſing to the poor Kamt-

7:Lesseps T-3 (1787-88)1790 Kamchadal

132 ſchadales is the reſult, as it happened laſt
166 yea- in all the villages along the weſtern
226 coaſt of the peninſula. This dreadful calamity occurs ſo frequently in this quarter, that the inhabitants are obliged to abandon their dwellings, and repair with their families to the borders of the Kamtſchatka, where they hope to find better reſources,
000 fiſh being more plentiful in this river. M. Kaſloff had intended to proceed along the weſtern coaſt, having already made his viſit through the eaſt; but the news of this famine determined him, contrary to his wiſhes, to return, rather than be driven to the neceſſity of ſtopping half way, or periſhing with hunger from the difficulty of procuring dogs and proviſion.

132 The wind varied conſiderably during my reſidence at Bolcheretſk; it was moſt commonly weſt, north-weſt, or north-eaſt; it blew ſometimes from the ſouth, but ſeldom from

7:Lesseps T-3 (1787-88)1790 Kamchadal

132 from the eaſt. The ſouth and weſt winds are almoſt invariably attended with ſnow. Scarcely a week paſſed, even to the month of January, without our experiencing two or three violent tempeſts; they commonly proceeded from the north-weſt. Theſe gales of wind laſted always a day or two, and ſometimes ſeven or eight days. It would have been the height of imprudence to venture out at ſuch a ſeaſon. The ſky was completely obſcured, and the ſnow, ſupported by theſe whirlwinds, formed in the air a thick fog, that prevented us from ſeeing at the diſtance of ſix yards. Woe to all travellers who are expoſed to this terrible weather! neceſſity compels them to ſtop, or they run the riſk of loſing themſelves, or of falling every moment into ſome abyſs; for how is it poſſible they ſhould find their way, or advance a ſtep, when they have to reſiſt the impetuoſity of the wind, and to diſengage themſelves from the heaps of ſnow

7:Lesseps T-3 (1787-88)1790 Kamchadal

361 From Malkin we went to Ganal, which is forty-five werſts, but we were unable to travel with the ſpeed we had expected. The Biſtraïa was not completely frozen, and we were obliged to wind about and to croſs woods, where the ſnow, though deep, was ſo far from firm, that our dogs ſunk to their bellies, and were extremely fatigued. This induced us to abandon this road, and make again for the Biſtraïa. We came up to it at ten werſts from Ganal, and found it in the ſtate we had wiſhed. The ſolidity of the ice promiſed us expeditious travelling, and we readily embraced the advantage. We followed this river till we came to the oſtrog which is upon its bank, and conſiſts of four iſbas and twelve balagans. It offered nothing remarkable.

132 We only learned that there had been ſome very terrible hurricanes, and that they had not yet ſubſided, though their force was con-

7:Lesseps T-3 (1787-88)1790 Kamchadal

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132 It preſents to our view merely a cluſter of houſes, with three ſteeples riſing above them, and is ſituated upon the border of the Kamtſchatka, in a baſon formed by a chain of mountains that raiſe their lofty heads around it, but which are however at a tolerable diſtance. Such is the poſition of the town of Nijenei, of which I had a higher opinion before I ſaw it. The houſes, amounting to about a hundred and fifty, are of wood, built in a very bad taſte, ſmall, and buried beſide under the ſnow, which the hurricanes collect there. Theſe hurricanes prevail almoſt continually in this quarter, and have only ceaſed within a few days. There are two churches at Nijenei, one is in the town, and has two ſteeples; the other belongs to, and is in the circuit of the fort. Theſe two buildings are wretchedly conſtructed. The fort is almoſt in the middle of the town, and is a large paliſaded encloſure of a ſquare form. Beſides the church,

the

7:Lesseps T-3 (1787-88)1790 Kamchadal

132 conſiderably diminiſhed. There is no difficulty in accounting for the violence of theſe tempeſts. The ſurrounding high mountains form ſo many receſſes in which the wind is embayed. The fewer avenues it has to eſcape at, the more impetuous it becomes: it ſeeks out a paſſage, ruſhes through the firſt that offers, breaks out in whirlwinds, ſcatters the ſnow over the roads, and generally renders them impaſſable.

000 Having ſpent a very indifferent night in the houſe of the toyon of Ganal, we ſet off the next day for Pouſchiné. The diſtance is ninety werſts, which however we performed in fourteen hours; but the laſt half of the journey was very painful. No road being opened, our ſledges ſunk three or four feet in the ſnow, and the jolts were ſo frequent, that I was happy to eſcape with being only once overturned. We judged from the ſnow upon the trees, that it muſt

22: Guillemard T-2 (1882) 1886 Kamchadal

435 price, but this animal does not exist in any numbers in the peninsula. The most valuable skin of all is that of the sea-otter (*Enhydra lutris*), which is becoming rarer year by year. A good pelt of this animal will bring even the native hunter as much as a hundred roubles, while in the European market a perfect one has been known to realise £120!

133 137 On the morning of August 22d we came for the first time to a *tûndra* of considerable size. After the gloom of the birch-forest these vast stretches of level ground have a most exhilarating effect. The feeling of oppressive stillness which but an hour or two before seemed to weigh upon us like a nightmare, disappeared as if by magic, and pushing our horses into an easy canter, we pursued our way with a sense of freedom that is rarely or never felt except by those who ride where fancy leads them over the level surface of an uncultivated plain. The melancholy, the *niedergeschlagenheit* of Kamschatka, of which Kittlitz gives such a long description in his account of the country, I confess I never felt: the converse—a purely physical feeling of delight in mere existence—we often experienced, and a good rollicking drinking song and a loose rein seemed a necessity in order to let off our stock of superabundant spirits. Long wastes of almost orange-coloured grass stretched away nearly to the horizon, only broken here and there by a still pool, or flecked by little tufts of snowy cotton-grass. Our 132 487 course—for we were on what a native would doubtless call the "high road" to Narchiki—was marked out by long poles, some fifteen or twenty feet in height, which in winter serve to guide the traveller over the dreary wastes of snow. In the forest another method is adopted. The trees are "blazed" by a vertical slit cut in the bark by the hunter's axe. This gapes with the growth of the tree and forms a conspicuous oval mark, ten or twelve feet above the ground—a height which forcibly impresses upon the mind the depth of the winter snow. Other evidences which told us that the warm sun beneath which we were travelling was an affair of days, not weeks, were close at hand, for the snow lay in thick patches

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132 at the base of the low range of hills bounding the plain,—the finger-marks, as it were, of the icy grip of winter.

231 We reached Narchiki early in the afternoon, and were greeted
361 by the prolonged howls of innumerable dogs. Though the village boasts of only six huts, there are over one hundred and fifty of these animals to pull the sledges of the inhabitants by day, and to endeavour, in combination with other equally hungry, though happily smaller creatures, to disturb their rest by night. The sledge-dog, indeed, appears to do without sleep, and anything more hideous than their nocturnal concerts it would be difficult to imagine. Fortunately an open-air life and hard work are not generally compatible with insomnia, and after a few nights the traveller would be more apt to miss his music than to abuse it.

133 Narchiki is placed on a little branch of the Avatcha River,
136 which is here not more than eighteen inches deep. Standing upon
226 its banks we began for the first time dimly to realise the vast numbers of fish which must annually visit the country, and which may be said literally to choke its rivers. Hundreds were in sight, absolutely touching one another; and as we crossed the river our
136 horses nearly stepped upon them. Their back fins were visible as
226 far as we could see the stream, and aground and gasping in the shallows, and lying dead or dying upon the banks, were hundreds more. The odour from these decaying fish was distinctly perceptible at a distance of a couple of hundred yards or more. In weight these salmon varied from seven to fifteen and even twenty pounds. They were for the most part foul fish,—blotchy with patches of red and white, and of the kind known by the Russians as the Garbusa;[1] but others in fair condition were to be found, and with a little trouble I was able to pull out three good ten-pound fish in as many minutes with a gaff. Any other method of fishing would have been useless. It would have been nearly impossible to make a cast without foul-hooking a fish, and nine-tenths, or more of them, were in an uneatable condition. Had we wished to do so, we

[1] *Salmo proteus* of Pallas.

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136 when the first heavy snow falls, at or about the beginning of the month of October. If in poor condition the bear is said not to hybernate till much later. According to the natives, the animals are tolerably fat on emerging from their dens, and support themselves on grass until the arrival of the fish.

133 137 Our road, some time after leaving Narchiki, had led to the west, in order to avoid a range of mountains of no great height which trends in a south-easterly direction from the village of Gunal. We now turned north once more, and entered a beautiful valley. To the east lay the range we had been circumventing, rising to a height of about 4000 feet, its large patches of snow glittering in the bright sun. The outline of these mountains was most picturesque; and, as we advanced, we opened out a group of *aiguilles* so jagged as to resemble a mass of inverted icicles. The valley was scantily clothed with juniper-bushes and dwarf birches, and early autumn had already touched the landscape here and there with patches of bright yellow. As we rode over the ruddy ground, which with its brilliant parti-coloured moss is so characteristic a feature of northern landscapes, we put up several coveys of ptarmigan; and on the outskirts of a small wood we obtained our first Capercailzie, a young bird which, like many other birds of this region, was characterised by the presence of a good deal of white in the plumage. The day was glorious, and so hot that we rode in our shirt-sleeves; our enjoyment only marred by the almost constant stumbling of our horses over the stumps and roots of the trees. The Kamschatkan ponies, which are generally iron-grey in colour, and stand about thirteen hands, are well shaped and have a good barrel, and are capable of a considerable amount of work. Owing, however, to the rough usage to which they are subjected, they are determined kickers, and obstinate to a degree; and it is most difficult to make them lead the way, or, if behind, to prevent them from following in the exact track of those in front. No food is carried for them, and not content with the nightly meal they obtain when picketed, they one and all feed in snatches as they

132 136 231

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000 pretentious type, but possessed, nevertheless, of a quiet beauty so perfect in its kind that the most fastidious of critics would have sought no alteration. Below our camp the river clattered between its banks of yellowing birches towards some snow-capped mountains that distance had painted a deep violet. The village, grey, battered and weather-worn, as are all these northern hamlets, nestled at the foot of the three peculiar peaks of the eastern range of the valley. Not a human being was to be seen, and the smoke of our evening camp-fire rose like a straight blue pillar into a golden sky. Around us was a stillness that could be felt,—the wondrous silence of the North; and on the summit of the little cross above the church a crow sat motionless in the evening sun,—a speck of steely blue against the snow beyond.

132 Gunal, with its enormous stores of salmon, seemed, like all
251 these Kamschatkan villages, a place of considerable size. A
343 nearer acquaintance, however, soon dispelled the illusion, and we
361 noticed that a large proportion of balagans seemed to be used as storehouses rather than dwellings. These buildings, which differ from the fish-sheds only in having a living-room at the top, and being consequently rather more solidly constructed, are rudely made of white poplar or birch trunks, pines being comparatively unknown in this part of the country. There are rarely more than two—at most three—tiers of fish drying beneath, for the sledge-dog is an active and ever-hungry animal, and six feet would be a dangerous height at which to suspend a salmon. The roof is high-pitched, and the thatch secured by means of light poles tied transversely across it. The entrance, a low door in the gable, is reached by a sort of ladder specially contrived for the humiliation of the unwary. It is merely a notched pole, placed loosely against the building, and not secured in any way; and the incautious European attempting the ascent is somewhat astonished to find the pole rapidly revolving, leaving him clinging back downwards
000 and discomfited. This simple arrangement, if capable of being put in action at will, might possibly be of considerable utility to those

the sun heat was, indeed, so great that we gladly took refuge in
132 the tent, and at noon the mercury stood at nearly 80° Fahr. in the shade. These hot days are not unusual at the end of August, and constitute a sort of Indian summer, which, as in Lapland, is but the immediate precursor of an autumn so short as hardly to be dignified by the name of a season. At sunset the temperature fell rapidly, and at night it was so cold that we were glad of four blankets, the thermometer being at or about freezing point. A range of something like fifty degrees in a single day is not often seen, but weather of an almost exactly similar kind is met with during winter on the high table-lands of Southern Africa. The Kamschatkan autumn cannot always be relied on, for, from what we could gather from the natives, it is not unfrequently attended with a very heavy rainfall, and occasionally with much wind.

136 We had hoped to find Bighorn in the mountains in the neighbourhood, but, greatly to our disappointment, the people of the village told us that these magnificent sheep never come down to the lower spurs of the range before winter, and that it was useless to go after them. This was the second time we had to give up the idea of hunting them. We were, however, more fortunate with the bears, and succeeded in bringing one to bag upon the first day after our arrival.

[of Gunal--Analyst]

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563 whole of the labour and material necessary for its construction was being gratuitously given by the inhabitants. I am obliged to record the fact that the building did not appear to be progressing with very great rapidity.

000 The weather of the previous day showed little signs of improvment. A biting wind with rain and sleet at intervals made us not sorry that we had settled to take a Sunday's rest here. Some fifteen miles or so to the eastward is a fine range of mountains about five thousand feet in height, which the downpour of the day before had covered to the lower slopes with fresh snow. Here and there a passing touch of sunlight fell upon the peaks and threw them out in bold relief against the leaden sky. But, late and cold as it was, the fishing had not ceased, and by the river-side they were cleaning and preparing Kisutchi—the latest salmon that visits Kamschatkan waters. Numbers of the King Salmon (*O. orientalis*) hung drying in the balagans; many of very large size.

132 The current of the river is rather swift here and at Werchni, and
133 we learnt that it does not usually freeze completely over until the end of January. It would seem as if the severity of the frost were never very great until that month. The snow invariably falls throughout the country in October, or even earlier, but it is seldom fit for sledge-travelling until November.

281 While at Melcova we tried to get some of the reindeer-skin
291 dresses of the country, as we had already felt the cold considerably in European clothes, and knew that at this season the thermometer would sink steadily from day to day. They had none for sale in the settlement, and we had to send over to Werchni Kamschatka for them. These dresses are of two kinds, the *kuklankas* and *parkas*, and are merely loose sacques composed of pieces of reindeer-skin beautifully dressed, and sewn together with thread made from the sinew of the animal, just as are the "karosses" of South Africa. They are provided with a large bearskin hood, and are put on over the head without fastening of any kind. The rest of the costume is composed of a pair of breeches of like nature, and boots almost

22: Guillemard T-2 (1882) 1886 Kamchadal

133 composed were less pleasing to a sailor's than an artist's eye; and it was with a certain relief that, on the return of the lifeboat we had sent to coast the shores of the bay, we learnt that no trace of walrus was to be seen. With the prospect of bad holding-ground and no shelter to speak of, we resolved on trying farther to the north, and therefore, without anchoring, made at once for Cape Klin, our original destination.

We kept within a mile or two of the land, expecting to arrive in an hour or less, for the distance between Capes Shipunsky and Klin was barely twelve miles by the chart. We found, however, that the distances were as little to be relied on as the outline of the coast, and we had logged thirty-six miles before stopping the 000 engines abreast of the cape. We rowed along the beach in vain in search of the game. Not a walrus was to be seen, but on nearing a little group of rocks we noticed a large mass lying upon the beach, and landed to find ourselves in the midst of a scene of slaughter which sufficiently accounted for the absence of our quarry. The crew of the schooner had evidently had good sport, for the shore was dotted here and there with the bodies of the slain, which were blown out to a gigantic size by decomposition. That there were still plenty of walrus in the neighbourhood was evident, for on our return to the ship the animals played in numbers around the boat; but, unlike the fur seal, they will not "haul up" on the shores where others of their species have been killed, and we had therefore to give up all hope of obtaining them at Cape Klin. The walrus restricts itself more or less to certain favourite spots for landing, and a random search for them along the coast would have been attended with but little success. It is nearly impossible to kill them in the water except by harpooning, for the only fatal shot—a small spot at the nape of the neck—is very rarely obtainable, and the animal, if struck there, usually sinks at once.

132 Our search having thus proved fruitless, there was nothing left
133 for us but to return to the neighbourhood of Cape Shipunsky, in the hope of obtaining some of the bighorn or mountain-sheep

22: Guillemard T-2 (1882) 1886 Kamchadal

132/133 which, according to Jacof Ivanovitch, were to be found there in abundance. A few years previously he had visited Betchevinskaya Bay, a deep inlet ten miles to the west of the cape, and had shot several; and since, according to his account, both anchorage and shelter were to be had—a not unimportant consideration on such a coast—we again steered southward, and keeping a good offing during the night, ran in to the land and picked up our position off Cape Shipunsky at daybreak. The coast is steep-to, and as we passed close to the fine cliffs and headlands which oppose the by no means tranquil Pacific, there lay the *neiges d'antan* bewailed of Maistre François Villon,—huge patches of last year's snow, choking the gullies down to the water's edge. That they should have remained throughout the hot summer in a south-east aspect was astonishing, and gave some idea of the severity of the climate in these latitudes, but the absence of the usual autumnal rains no doubt in great measure accounted for it.

133/137 Before reaching our anchorage just within the entrance of the bay, we could distinctly make out small herds of the animals of which we were in search on the slopes of the cliffs, which here rose to a height of five or six hundred feet, precipitous in some places, but in others forming a sort of under-cliff covered with brushwood. We lost no time in settling our plan of action. Judging that the bighorn were confined to the promontory near which we had anchored, we resolved upon surrounding it, sending four guns to the top of the cliff, whose sea-face extended east and west for a distance of about three miles, and posting two others upon the beach below. The former, ascending in rear from the shores of the bay, reached their destinations with some difficulty, the undergrowth being so dense and strong that, but for the bear-paths with which it was cut up in all directions, it would have been impenetrable. At the edge of the cliff progression was somewhat easier, and on looking over we found ourselves in close proximity to the game.

000 Owing to the excitability of Jacof, who had got some distance ahead, we began the day in a manner I hardly like to recall. The

24: Lansdell-635 M-2 (1879) 1882 Kamchadal
116, 132

" The climate of Kamchatka is much milder than in the eastern parts of the mainland. The frost sets in about the middle of October, but up to December the temperature rarely falls 10 below the freezing point of Farenheit, though in severe winters the thermometer sometimes sinks to 25 below zero. Snow-storms with wind, called poorgas, are prevalent in February and March. They sometimes take up whole masses of snow, and form drifts several feet deep in a few minutes, burying, it may be, travellers, dogs, and sledges, who remain thus till the storm is over. Dogs begin to howl at the approach of a poorga, and try to burrow in the snow if the wind is cold or violent."

24: Lansdell-636 M-2 (1879) 1882 Kamchadal
116, 132, 137, 241, 286

" The valley watered by the Kamchatka is composed of fine mould, and has abundant natural productions- fir, birch, larch, poplar, willow, cedar, and juniper, and that of larger size than in the same latitude elsewhere in Asia. Raspberries, strawberries, whortleberries, currants, and cranberries abound; and flowers are seen in spring in almost tropical luxuriance. There is much grass in the lower lands, and Mr. Hill records an extraordinary phenomenon in a place he visited respecting the growth and preservation of potatoes.(1) There grows, likewise, a plant in the country called by

1. Admiral Ricord, a former governor of Kamchatka, imported potatoes for seed, and they were planted, but not taken up the following autumn. The next year, being found abundant and good, they were allowed to remain, where , dying and propagating continually, they yielded more than were locally required. Mr. Hill accounts for the phenomenon by the fact that neither damp nor frost could reach the potatoes; for though in winter the snow covers the surface of the frozen ground, yet so great in this vicinity is the internal volcanic heat that the earth is quite dry, and never frozen below a few inches from the surface.

the natives krapeva , from which they make a coarse but very durable cloth. It resembles our stinging -nettle, but is of larger growth and stronger fibre."

27: Sauer--147 T-2 (1789-93) 1802 Kamchadal
116, 132

"We passed a pleasant and agreeable winter in different excursions to Bolshoiretsk, &c. enjoying all the good things in Kamtshatka, and perfect health. The frost was generally 5° to 8°. The severest cold that we had did not exceed 18°, and lasted only a few hours. Snow was very deep."

27: Sauer--214 T-2 (1789-93) 1802 Kamchadal
116, 132, 133

"We passed the winter [CMC: 1790-1791] in excursions of pleasure, and in dancing and card parties, chiefly at Bolshoiretsk, where the luxuries of life are more plentiful than in the harbour of St. Peter and St. Paul. The frost was sometimes very severe, and we had for a few hours 21° below the freezing point of Reaumur. Two or three earthquakes happened about the neighbourhood of Neizshni; but, except a slight shock on the 21st November at noon, none of them reached the harbour of St. Peter and St. Paul.

...

...

By the 1st of May the bay of Avatska was clear of ice, and not before, owing to the feverity of the winter: but the inner harbour of St. Peter and St. Paul remained frozen up."

27: Sauer--290-291 T-2 (1789-93) 1802 Kamchadal
116, 132, 133, 137, 824

"The productions of nature [CMC: in central Kamchatka] are, a small kind of wild black cherry (tsheromka), in great abundance; the wood of which, being particularly hard, is used by the Kamtshadals for their guiding sticks to the sledges: the thickest trees that I have seen are nine or ten inches in circumference. Firs, common pine and larch trees of extraordinary size, with birch, poplar, asp, and mountain-ash, clothe the mountains to their summit. The underwoods are, currant, dog-rose, hawthorn, alder, and bushes producing berries.

The climate is very different from that of the southern and northern parts of the peninsula, the valley being completely sheltered from the sea-breezes that chill the air in other parts, and prove a great check to vegetation, which commences here in the month of March. The scenery is beautiful beyond description, [291] the river meandering through the midst of the valley, from 50 to 250 yards wide, and from eight to 15 feet deep, and being replete with trout and every species of salmon in the season. This valley is 180 miles in length, frequently opening prospects of the Tolbatshinsk, a lofty double-headed mountain, constantly emitting an immense column of black smoke; while the second volcano, Klutshefskoi, towering to an incredible height, illuminates the clouds with its blaze, and affords a view awfully grand."

27: Sauer--297 T-2 (1789-93) 1802 Kamchadal
116, 132, 133

"The harbour of Tareinsk opens to the west: the entrance is about one mile in length, when it suddenly turns to the south-east, extending twelve miles in length, and three in width: the depth is from six to eight fathoms, mud and sand. A narrow neck of high land at the bottom, like an artificial partition, separates it from the sea. This harbour, although extremely convenient in its construction, is not so in its situation; as an easterly wind is absolutely necessary to bring outward bound vessels into the bay of Avatsha where it is quite contrary; besides, it is exposed to the north and north-west winds, which blow over the plains of Avatsha right into it, and keep it blocked up by ice till late in the season."

29:Cochrane T-2 (1821-22) 1824 Kamchadal

361 ment so far as to induce them to export doctors to,
563 and import priests from Kamtchatka. I mean no disrespect to those reverend gentlemen, but just to hint, as my opinion, that instead of the soul only, it would be better to take care of the soul and body at the same time. The average number of people annually admitted to the hospital books is three hundred and fifty, nearly twice its whole population, who are chiefly employed in fishing and trading with the neighbouring Koriaks or Kamtchatdales. The place also serves to keep up the winter communication with Okotsk. For the Koriaks will not furnish rein-deer or dogs to carry the post, unless they are remunerated by a present of tobacco, spirits, &c.

000 From what I have seen of the Koriaks, both in Tygil and in their encampments to the southward, I have no doubt of their being of the same tribe as the Tchuktchi; they have the same features, manners, and customs, and the same language—the same love of independence, and are, in truth, less scrupulous of giving offence to the Russians than their northern neighbours, for they frequently break out in hostility with the inhabitants of Tygil, unless a supply of spirits and tobacco is sent to them, for which, however, they barter rein-deer and furs.

132 The climate of Tygil is cold; already had the
563 thermometer passed 28° of Reaumur. The Cossacks however, contrive to raise a few vegetables, as po-

39:Cochrane T-2 (1821-22)1824 Kamchadal

133 more than the melting of snow and rain which de-
231 scend from the eternally snow-clad peaks. The quantity of horned cattle upon the coast is so small as not to merit notice, although the pastures are extensive and fertile enough to feed millions.

563 At Sedanka we procured dogs to enable us to cross the mountains to the next station, a distance of one hundred miles. Early in the morning we passed the camp of the Koriaks, and continued our route along the Sedanka river for forty miles, when we reached the Rasoshna. We encamped for the night in the snow, the dogs round us, and then the fire; we passed on the whole, a pleasant night, although my feet were still in a bad state, owing probably to their late want of pedestrian exercise.

133 The following day we crossed numerous elevated
137 lakes, and then over mountains and a well wooded country. On our way we fell in with a caravan of eleven nartes from the town of Cliutchi bound to

133 Tygil. We continued until we reached an elevated
132 desert of ten miles long, which we crossed in a continual storm of wind and snow, called in this country *purga;* we halted in a miserable place, having come about thirty miles. I can hardly imagine how the poor dogs found their way, or how they managed to drag us along. There are times when these *purgas* are so tremendous that mountains of snow are levelled, immense valleys filled, whirlpools formed of snow, not only stopping the further progress of the traveller, but absolutely burying him

29:Cochrane T-2 (1821-22) 1824 Kamchadal

132 and his dogs: nothing can exceed the devastation,
133 or be compared to it, but the effects of the wind on sandy deserts or mountains. I have known instances of people detained for twenty and thirty days in this tremendous pass, and it is seldom that it is crossed without a gale. And yet all this difficulty and danger might be obviated simply by the erection of crosses or mounts, as in the northern parts of Siberia, where I have seen in the distance of thirty or forty miles, a small mound of earth, with a white and black chequered cross placed at every one hundred and fifty yards.

133 The night was exceedingly cold, and the snow
137 and wind prevented our even enjoying the luxury of a cup of tea, for no fire could be lighted. Crossing a second toundra, desert, of seven miles wide, with infinite labour to the dogs as well as ourselves, we entered upon a most magnificent country. Lofty, straight, and stout firs lined the right of the valley, while the dwarfish larch, and alder, mixed with birch, stood upon the left in all their bandied and
000 crooked shapes. The contrast was extremely pleasing as we glided along the milky valleys at a rapid rate. Immediately upon clearing the desert the snow and wind ceased, and we hailed the return of fine cold weather. Not long after we overtook a caravan of nartes in great distress, having been detained ten days in the mountains by the weather. The dogs had been without food for three days, and were evidently in the last stage. In the early

29:Cochrane T-2 (1821-22)1824 Kamchadal

563 it is not so, considering how well its central situ-
361 ation is adapted for that purpose. A neat church has lately been erected at the expense of the inhabitants, who are in general disliked by the chiefs and officers, owing to their resisting the payment of individual yasack, or presents. This is surely an enhancement of their character.

563 I quitted the village of Cliuchie perfectly satisfied with the character and conduct of its inhabitants. They preserve a great tenaciousness of their rights, and detestation of the injustice shown to their neighbours, the aborigines. To prove this assertion, I need but mention that with these Cliuchie peasants, I was obliged to pay in money for the hire of the dogs which drew me; a circumstance which had happened to me no where else, and therefore carries the most undoubted proof of exactions, extortions, and cruelty exercised upon the most innocent and inoffensive peo-
132 ple in the world. My route lay from Cliuchie at first over some small lakes, and then along the banks of the Kamtchatka, which at this period of the year, 14th December, O. S. is but half frozen.
361 At twenty-five miles I reached the ostrog called
161 Krestova, having three yourtes and twenty-four in-
164 habitants, nearly all of whom are confined by disease. I continued on with the same dogs to Oushkielova, thirty miles farther, having four habitations and twenty individuals, most of whom also are debilitated: indeed it is extraordinary what

29:Cochrane T-2 (1821-22)1824 Kamchadal

000teen days in a storm, and he and all the party, men and dogs, were nearly perishing of hunger, having partaken of nothing but youkola (dried fish) for five days. Having exchanged dogs with another narte,
574 I continued on for Pouschin, twenty miles, and
576 arrived before noon. The Toion and I had a difference of opinion, which I shall ever regret, as it arose from my ignorance of the proper character of the Kamtchatdales. The poor man had heard of my coming, and had actually provided a good dinner for me, which I did not partake of, in consequence, of his not inviting me; another poor man actually did invite me, and I entered his more humble dwelling. The Toion was much surprised, and more vexed at this slight, which tended to lower him in the opinion of his subjects. The fact proved to be that the Toion is really one of the oldest Kamtchatdales, and was only complying with the ancient custom of the country, which is not to invite a stranger into his dwelling, considering that such stranger has the right not only to take it, but even to eject its owners. I left him with great regret that I could not stay another day to make him amends; I did, however, all I could, with this view.

133 Ganal, forty-five miles from Pouschin, a ro-
132 mantic country, we passed in high glee at the near
361 prospect of finishing my journey. The elevated ranges of mountains which form the Ganal Valley have all flat summits. To the valley succeeds a level

133 plane, very subject to storms and heavy falls of
132 snow. I reached the place at nine in the evening.
The inhabitants, amounting to thirty-two, live in
161 four yourtes, and are all afflicted with the disease
164 so common to the peninsula; and the contagion, and
262 want of medicine have been so great, that even the
361 children are equally afflicted, and the complaint of scrofula is become hereditary. In this part of the peninsula the chase is scarce, and the inhabitants mostly subsist upon fish, a few mountain sheep, and wild rein-deer, being the only meat they taste from one end of the year to the other. The situation is fine and highly productive in fish, but at this moment there are not a sufficiency of people to transact the ordinary business; a circumstance which calls aloud for the compassion of the chief.

133 From Ganal to Malka are thirty miles, the first
361 ten of which are over a sterile mountainous country, which is more than compensated by the succeeding richness of a valley eighteen miles in length. I crossed several times the Bistra, a rapid stream, uniting with the Bolshaya Reka, and was again obliged to become pilot, chief, and dog-master; however, I managed very well, and arrived early. Malka is deserving of little notice, yet is said to be celebrated for its baths! The situation is magnificently grand; the hospital stands in the bosom of a lofty chain of elevated mountains at two miles from the village. I was welcomed by two old acquaintances, both of whom
[of Ganal village--Analyst]

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CHAPTER XI.

General Observations on the Peninsula of Kamtchatka.

000 KAMTCHATKA is a large peninsula of an elliptical figure, extending from the latitude of 59° to 51° N; the breadth is inconsiderable. A magnificent chain of mountains, with numerous sopkas or peaks, extend from north to south, the whole length of the peninsula, from which mountains numerous rivers, large and small, find their way into the ocean. Of these the Kamtchatka is the only navigable one, admitting vessels of one hundred tons as far as one hundred and fifty miles up the stream. All the rivers are, however, crowded with fish of superior flavour. There are also lakes of considerable size, and so numerous, that all intercourse between the several parts of the Peninsula is, during spring, summer and autumn, effectually precluded.

132/137 The productions of the country are few but valuable. There is an abundance of wood, as fit for ship-building as for general use. The finest timber is found on the banks of the Kamtchatka, Yelofka, and eastern coast, but the climate is such as to induce me to believe that neither corn nor vegetables will ever attain to great perfection; the soil in all seasons, at the depth of twenty-four to thirty inches, being frozen. Potatoes never ripen, cab-

29:Cochrane T-2(1821-22)1824 Kamchadal

132 bages never come to a head, and peas only flower;
137 but turnips and radishes thrive amazingly. Grass of the most nutritious quality is found in the greatest abundance, as well in the numerous meadows as in the forests. It grows to the height of between five and six feet, and in some places three crops are produced within the year.

132 Winter may be said to occupy near one half of the year, spring and summer the other half. The winters are mild when compared to those of Siberia; the thermometer never descending, in the southern parts of the Peninsula, below 20° of Reaumur, and seldom below 12° and 15°. Spring is the most agreeable time, just when the leaves put forth, and it is then the fishing commences. The summer is the most disagreeable portion of the year, owing to the heavy rains and heavier fogs which come from the eternally snow-clad mountains. The greatest heat is in July, when the thermometer is at 27° and 28°. The snow lying upon the ground seven and eight months will sufficiently account for the want of cultivation, but indeed the remaining four can hardly be considered as equal to more than two months in other places; for the sun at St. Peter and St. Paul's has no effect upon the earth during more than four hours of the day, and from the immense height of the mountains, it is only from ten o'clock until two that any heat is felt.

251 This absence of heat, and these changes of climate, with the very heavy fogs, which account for

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563 sides trade. Of late the Emperor has given the cler-
793 gy an allowance of flour as well as a regular salary,
R and it may therefore be hoped that the natives will,
177 at least, be so far benefited as to have fewer of their
. 79 visits, except on their spiritual concerns.

000 Whether the Russian government will pay any attention to the serious and deplorable situation of the peninsula of Kamtchatka is of no personal consequence to me, though I may well feel a strong interest concerning a place in which I resided for more than a year, and where I married. The ceremony was attended with much more pomp and parade than if it had been celebrated in England: it took place on the 8th of January, and I certainly am the first Englishman that ever married a Kamtchatdale, and my wife undoubtedly the first native of that peninsula that ever visited happy Britain.

The winter was passed in a constant round of hospitality and comfort, and hardly any thing re-
133 markable occurred to call for observation. Three shocks of earthquakes were felt, two of them very severe: one threw the sand up from the banks of the river Kamtchatka, and quite annihilated the snow; the Kliuchefska Sopka also
132 emitted flames and lava. The snow began to disappear at St. Peter and St. Paul's in the beginning of May. By the middle of the month one of the transports sailed from the port to Nishney Kamtchatsk, reaching it in five days; and by the latter

[in the winter of 1821-22--Analyst]

29:Cochrane T-2 (1821-22) 1824 Kamchadal

end of May the snow had entirely disappeared, and Spring, in the course of a few days, made her welcome appearance; wild flowers and vegetables were every where springing up, and enlivening the dreariness of the last seven months. Even the rigging of the transport which was to carry me back, excited my interest, and reminded me of former times. The attention of the inhabitants was sufficiently engaged by the accession of fish, as herrings in the inner harbour, cod in the outer haven, and seals every where. Some among them proceeded to the islands at the mouth of the haven, and brought in some thousands of eggs, while others were out in shooting parties, sending us in snipes, wild ducks, and partridges. The wild garlic made its first appearance at Cape Garlick so early as the 15th of May.

Only a few individuals died in the hospital, most of them with the scurvy; the remainder were soon restored to sound health by Spring and fresh fish. Our evening walks were sometimes extended to the summits of the hills, where we took our tea or smoked a segar; but latterly the little place,—I cannot call it a town,—became overflowed from the melting of the snow, and it was with difficulty we could move about. In the month of June a vessel arrived from Canton and Manilla, in ballast, having failed in procuring a cargo of flour. By that vessel I received a most friendly letter from Mr. Urmston, the chief of the British factory, together

29:Cochrane T-2 (1821-22) 1824 Kamchadal

the inhabitants make their parkas and all their warm clothing, which are also exceedingly comfortable and beautiful. The climate of the islands resembles that of St. Peter and St. Paul's. The soil is generally good, producing fine pastures. On the first isle there was formerly an abundance of cattle, but now only two cows remain.

The second island, about ninety miles from the first, has seven yourtes, with thirty-five males and forty-two females, paying tribute for itself and the fourteenth isle, nominally, thirty-five sea-otters; that is, twenty-three foxes and one hundred and fifty roubles. The fourteenth isle has three yourtes, fifteen males, and seventeen females. Of the intermediate islands, and those beyond the fourteenth, I could obtain but very little information; the whole are evidently volcanic productions, and are supposed to have been separated by some violent convulsion of nature from the peninsula of Kamtchatka. The islands, which are lofty and bold, are said to be without rivers, nor are there any harbours known. It is to be remembered, however, that they have been but very imperfectly surveyed. The inhabitants are supposed to be of the same origin as those of Kamtchatka, though they differ in the custom of wearing long beards, which was probably introduced among them by the Russians. Their dialect is the same with that of the inhabitants near Cape Lopatka; from whence baidares are frequently sent to the first and second isle, to bring the tribute and furs. [the Kurils--Analyst]

G /358 cont./
343 merely an approximately square hole which is just big enough so that a person can go through it in a stooped position, and whose cover is a board that fits it exactly, before which a crosspiece of wood is advanced instead of a bolt (3). The interior of the store-

3. An illustration of the front side of such a storehouse, among other things, will be found below on a plate showing a funeral procession of the Gilyak.

house is usually divided by a partition into two sections, which are connected by a door, so that in it, as the accompanying plan indicates, there are eleven separate, larger or smaller wall surfaces, along which the supplies of fish are stacked.

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/359/ Like the earth yurt, all the pile buildings mentioned above, the summer yurt, the storehouse, etc., are original, peculiarly Gilyak structures which the neighbors of the Gilyak, the Tungusic Amur-peoples, lack, but which recur among many other Paleo-Asiatic tribes. For example, according to
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Krascheninnikof's and Steller's descriptions and an illustration given by the latter, the summer dwellings of the Kamchadal are pyramidal huts built on high piles, which are called balagan
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by the Russians (1). The Eskimo of the American Northwest along
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1. Krasheninnikov", "Opis. zemli Kamchatki" (Poln. sobr. uchen. putesh. po Rossii, Vol. II, St. Petersburg, 1819, p. 37). Steller, Beschreib. von dem Lande Kamtschatka, Frankfort and Leipzig, 1774, p. 215. Steller also gives the dampness of the air and the ground as the compelling reason for the construction of such "airy dwellings" on Kamchatka. This explains why these peculiar dwellings continued to be retained after the earth yurts, as mentioned above, had already been forced out by Russian-type dwellings.

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